

Du'Bois J. Ferguson
Remediation Manager

Schlumberger Oilfield Service
300 Schlumberger Drive
Sugar Land, TX 77478
Tel: 281-285-3692
DFerguson3@slb.com

June 10, 2010

VIA FedEx Overnight

Section Chief
Environmental Enforcement Section
U.S. Department of Justice
PO Box 7611
Washington, DC 20044-7611

Craig Zeller
Remedial Project Manager
Superfund Division
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

Re: DOJ Case No. 90-11-2-696/1

Subject: May 2010 Monthly Report
Sangamo Weston/Twelvemile Creek/Lake Hartwell Superfund Site
Natural Resources Trustees Consent Decree

Dear Section Chief:

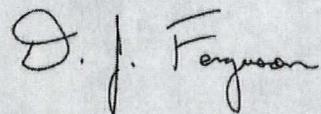
In accordance with the Consent Decree and Section XIV of the Unilateral Administrative Order for the above referenced site, Schlumberger is required to submit Progress Reports on a quarterly basis. Given the current pace of activities, we will be submitting Progress Reports on a monthly basis until further notice in satisfaction of the reporting requirements of the Consent Decree and Unilateral Administrative Order.

In keeping with Paragraph 20 of the Consent Decree:

I certify that the information contained in or accompanying this submission is true, accurate and complete. This certification is based on my personal preparation, review, or analysis of the submission, and/or supervision of persons who, acting on my instructions, made the verification that the submitted information is true, accurate and complete.

If you have any questions, please do not hesitate to contact me at (281) 285-3692.

Sincerely,



DuBois J. Ferguson
Remediation Manager



10979045

U. S. EPA REGION IV

SDMS

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cc: Honorable G. Ross Anderson, Jr.
G. Ross Anderson, Jr. Federal Building
and United States Courthouse
315 South McDuffie Street, 2nd Floor
Anderson, SC 29624

Honorable William W. Wilkins
Nexsen Pruet
55 E. Camperdown Way
Suite 400
Greenville SC 29601

Leon C. Harmon Esq.
Nexsen Pruet
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Greenville SC 29601

John Cresswell
Assistant Director
Division of Site Assessment and Remediation
Bureau of Land & Waste Management
SC Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Regional Solicitor's Office
U.S. Department of the Interior
Attn: Harriet M. Deal
75 Spring Street, SW Room 304
Atlanta, GA 30303

Diane Beeman & Diane Duncan
Ecological Services Office
U.S. Fish and Wildlife Service
176 Croghan Spur Road, Suite 200
Charleston, SC 29407

Paul League
SC Department of Natural Resources
Office of Chief Counsel
1000 Assembly Street
Columbia, SC 29202

Anthony Rabern
Georgia Department of Natural Resources
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Atlanta, GA 30334

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4144 Russell Dam Drive
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Frank S. Holleman III
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44 East Camperdown Way
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Mr. Paul Doody
ARCADIS
6723 Towpath Road
Syracuse, NY 13214-0066

Mr. John N. Hanson
Beveridge & Diamond, P.C.
1350 I Street, N.W.
Suite 700
Washington, D.C. 20005-3311

May 2010 Monthly Report
Sangamo Weston/Twelvemile Creek/Lake Hartwell Superfund Site
Operable Unit 2

Activities Completed

- Completed installation of groundwater monitoring wells.
- Initiated and continued dredge verification surveying.
- On April 30, 2010, Scottie Ferguson (Pickens County Storm Water representative) conducted a visit to the SMU site to conduct a site wide examination of the erosion control measures.
- May 26, 2010, SCDHEC Solid Waste Management Regional personnel Bill Rampey performed a Class Three Landfill Inspection in accordance with Regulation 61-107.19, Part V. The completed Inspection Form is provided as Attachment 1.

Results of Sampling, Tests, and Other Data

- Collected post-dredge survey data in Twelvemile Creek in 100 foot interval sections. Once information from the first 500 foot section is complete, the information will be submitted in accordance with the Dredge Verification Plan.
- Sampling and analysis is being conducted relative to the creek turbidity, and water treatment system effluent water. Results for the effluent water are attached and the continuous turbidity monitoring data is available onsite.

Plans, Reports, and other Deliverables

- Analytical data related to samples collected from the SMU site by Rogers and Callcott Engineers, Inc. to assess water treatment effluent water were submitted to SCDHEC in the April Monthly Discharge Report (submitted May 18, 2010) in Attachment 2.

Work Planned for June 2010

- Continue sediment dredging activities in the WSI and WSII impoundments.
- Continue placement, sampling, and verification of 24" Protective Layer/dredge material in SMU.
- Continue dredge verification surveys. Initiate submittal of the first 500 foot section.

Problems Encountered, Anticipated Delays, Solutions

- None at this time.

ARCADIS

Attachment 1



Class Three Landfill Inspection Form Regulation 61-107.19, Part V

Facility Name: 1/2 Mile Creek ProjectDate/Time of Inspection: 26 May 10County: Sumter

Permit #:

Reason for Inspection: Routine Follow-up: Complaint Other: NoneCurrent Weather Conditions: Partly cloudyPrevious 24-hours: Rain N - If yes, amount _____ inches; High winds Y

1. Meets or exceeds regulatory requirements; 2A - Improvement needed (minor issues exist; corrective measures recommended); 2B - Improvement needed (moderate issues exist; corrective action required and scheduled); 3 - Unacceptable (serious issues and/or recurring issues with minimal or no corrective action taken - alleged regulatory or permit condition violations have occurred - enforcement referral required); Y - Yes; Meets or exceeds regulatory requirements; N - No; Corrective measures recommended that should be fixed by the next inspection or an agreed upon completion date; NA - Not applicable; NI - Not Inspected

Procedures for Excluding Receipt of Unapproved Waste (258.20)

1. N Overall effectiveness of Special Waste Analysis and Implementation Plan (SWAIP)
2. Y N N A N I Trained waste screener present
3. Y N N A N I Random daily load inspections conducted and documented
4. Y N N A N I Records of unacceptable waste maintained
5. Y N N A N I Personnel training program on recognition of regulated hazardous waste and PCB waste
6. Y N N A N I Record of notification to Department within 72 hours of hazardous or PCB waste receipt
7. Y N N A N I Unauthorized wastes removed from working face by the end of the operating day

Cover Material Requirements (258.21)

8. N ≥ 6" soil (short-term cover)
9. / Alternate Daily Cover (ADC)
10. / ≥ 6" soil (long-term and/or intermediate cover)
11. Y N N A N I Adequate soil quantity available for cover

Control of (258.21, 22, 24, 25 and 37):

12. / Blowing litter
13. / Off-site odors
14. / Disease vectors
15. / Fires/Open burning
16. / Soiling

Access Requirements (258.25)

17. / Condition of access controls
18. / Condition of all weather roads - entrance
19. / Condition of all weather - internal haul roads

Run-on/Run-off Controls (258.26)

20. / Condition of ditches/swales
21. / Condition of berms/terraces/downchutes
22. / Condition of sedimentation ponds

Leachate Seeps (258.26 and 27)

23. N Leachate seep management

Liquid Restrictions (258.28)

24. N Free of unauthorized bulk or non-contained liquids

Record Keeping Requirements (258.29)

25. Y N N A N I Required records are maintained in the landfill's operating record

Name of those present during the inspection: DON GLENN

Comments: Facility is fully operational. Sedimentation ponds and the unit 4 Dredge/Drill tank system are still down.

Inspection Item	Corrective action required	Date to be completed

- face by the end of the operating day
- Cover Material Requirements (258.21)**
8. 2' 6" soil (short-term cover)
 9. Alternate Daily Cover (ADC)
 10. ≥ 6" soil (long-term and/or intermediate cover)
 11. Y/N/NA/NI Adequate spill quantity available for cover control of (258.21, 22, 24, 25 and 37):
 12. Blowing litter
 13. Off-site odors
 14. Disease vectors
 15. Fires/Open burning
 16. Scavenging

Access Requirements (258.25)

 17. Condition of access controls
 18. Condition of all weather roads – entrance
 19. Condition of all weather – internal haul roads

Run-on/Run-off Controls (258.26)

 20. Condition of ditches/swales
 21. Condition of berms/terraces/downchutes
 22. Condition of sedimentation ponds

Leachate Seeps (258.26 and 27)

 23. N/A Leachate seep management

Liquid Restrictions (258.28)

 24. N/A Free of unauthorized bulk or non-containerized liquids

Record Keeping Requirements (258.29)

 25. Y/N/NA/NI Required records are maintained in the landfill's operating record

31. Leachate collection system management
32. Leachate recirculation system management
33. Y/N/NA/NI Required leachate recirculation reports/data contained in the landfill's operating record
34. Leachate seep management
35. Leachate collection system management

Testing of Municipal Solid Waste (MSW) Incinerator Ash (258.35)

 36. Y/N/NA/NI MSW incinerator ash management

Sign Requirements (258.36)

 37. Y/N/NA/NI Required signs posted

Condition of Monitoring Wells (258.51)

 38. N/I Monitoring well maintenance program

Working Face/Elevation (258.87)

 39. Y/N/NA/NI Method of elevation control with benchmark

X Plans and Permit (Permit)

 40. Y/N/NA/NI Operating in accordance with approved plans and general permit
 41. Y/N/NA/NI Permitted engineering drawings available
 42. Y/N/NA/NI Permitted operational plan available
 43. Y/N/NA/NI Permitted stabilization/landscaping plan available
 44. Y/N/NA/NI Permitted contingency plan available
 45. Y/N/NA/NI Permitted approved groundwater-monitoring plan available
 46. Y/N/NA/NI Permitted closure plan available
 47. Y/N/NA/NI Permitted post-closure plan available

Name of those present during the inspection: D.J. GLEN

Comments: Fully operational. Sediment is being added into the unit via Dredge and Tote system. No bulk storage.

Inspection Item	Corrective action required	Date to be completed
40.1		

Additional comment page: Y/N

Photos taken: Y/N

The signature below certifies that the SCDHEC Inspector has personally checked each item and has answered according to the true condition existing at the time of inspection.


Facility Representative


SCDHEC Inspector

DHEC 3891 (08/2008)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

Original (White) - SCDHEC/BLWM Copy (Yellow) - Facility Copy (Pink) - Regional EQC Office

ARCADIS

Attachment 2



ARCADIS
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P.O. Box 66
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New York 13214-0066
Tel. 315.448.9120
Fax 315.449.0017
www.arcadis-us.com

Mr. Dale Stoudemire, Manager
South Carolina Department of Health and Environmental Control
Bureau of Water/Water Pollution Control Division
Data Management Section
2600 Bull Street
Columbia, South Carolina 29201

ENVIRONMENTAL

Subject:
Schlumberger Technology Corporation, Twelvemile Creek Restoration Project
Pickens County, South Carolina
April 2010 Sampling Results Report

Date:
May 28, 2010

Dear Mr. Stoudemire:

On behalf of Schlumberger Technology Corporation (STC), ARCADIS is providing a summary of sampling results for the Twelvemile Creek Restoration Project in Pickens County for the month of April 2010 in accordance with the October 15, 2009 letter from Butch Swygent of South Carolina Department of Health and Environmental Control (SCDHEC) to Chris Moody of ARCADIS and the March 11, 2010 SCDHEC construction operation approval memorandum.

Table 1 contains the daily discharge information from the water treatment plant to Twelvemile Creek. This data is recorded onsite and is reviewed and approved by the Rogers and Callcott South Carolina certified water treatment plant operator. The maximum daily discharge for April 2010 occurred on April 9 and was 3.99 million gallons per day (MGD). Discharge to the creek occurred during 19 days of the month with an average discharge of 2.05 MGD.

Table 2 contains the results of the analyses described in Table 1 of the October 15, 2009 letter that were performed on the water treatment plant effluent during the month of April 2010. The Laboratory Services Reports from Rogers and Callcott Laboratory Services related to these tests are provided in Attachment A. During the initial weeks of system start-up, several parameters fell outside the ranges set out in the October 15, 2009 letter. Sample AC76296 taken on April 6, 2010 fell outside the pH range provided in Table 1 of the October 15, 2009 letter. This issue was resolved with additional backwashing of the activated carbon units (the slightly elevated pH readings (8.6 vs. 8.5) are typical during initial use of fresh activated carbon). For Sample AC76887, taken on April 13, 2010, both total suspended solids and PCBs

Contact:
Lance S. Ketcham
Phone:
315.671.9163
Email:
Lance.Ketcham@arcadis-us.com
Our ref:
MT001019

Imagine the result



Mr. Dale Stoudemire
May 28, 2010

were detected at levels outside the concentrations provided in Table 1 of the October 15, 2009 letter. PCB-1428 was the only PCB aroclor detected (at 0.62 µg/L) for this sample; all other PCB aroclors analyzed in the sample were below the detection limit (0.5 µg/L). The two additional samples analyzed for PCBs during April had concentrations of PCBs below the detection limit. Only three samples were collected and analyzed for PCBs due to production. Based on this information, the monthly average, which is calculated assuming a concentration equal to the detection limit for compounds not detected, was heavily influenced by the single detection and the PCB-1428 monthly average concentration of 0.52 µg/L is only slightly above the 0.5 µg/L concentrations given in the October 15, 2009 letter.

The April 13 data were reported to Melinda Vickers of SCDHEC in a letter from James M. Kirlin, P.E. of Rogers & Calcott Engineers, Inc. dated April 19, 2010. The system was shut down on April 15, 2010 while this issue was investigated and corrective measures taken. During the shutdown of the system, the ModuTank was drained and filled with creek water and the water treatment system was backwashed continuously. The system was restarted on April 21, 2010.

Table 3 summarizes the results of the whole effluent toxicity (WET) testing; the Laboratory Services Reports for these tests are provided in Attachment B.

If you have any questions on the above, please feel free to contact me.

Sincerely,

ARCADIS

Lance S. Ketcham
Senior Engineer/Manager

Copies:

Melinda Vickers, SCDHEC
Eric Klm, SCDHEC
Du'Bois J. Ferguson, STC
Gary Odom, STC
Paul Doody, ARCADIS

ARCADIS

Tables

Table 1. Daily Discharge from Water Treatment Plant for April 2010. Twelvemile Creek Restoration Project, Pickens County

Date	Discharge, MGD
Monthly Avg.¹	MR
Daily Max.¹	MR
4/2/2010	3.16
4/3/2010	1.35
4/4/2010	2.07
4/5/2010	1.68
4/6/2010	0.22
4/7/2010	2.93
4/8/2010	3.46
4/9/2010	3.99
4/10/2010	0.42
4/11/2010	2.95
4/12/2010	3.77
4/13/2010	3.55
4/14/2010	ND
4/15/2010	ND
4/16/2010	ND
4/17/2010	ND
4/18/2010	ND
4/19/2010	ND
4/20/2010	ND
4/21/2010	0.48
4/22/2010	ND
4/23/2010	ND
4/24/2010	ND
4/25/2010	1.54
4/26/2010	1.17
4/27/2010	1.73
4/28/2010	1.21
4/29/2010	2.23
4/30/2010	1.09
Average	2.05

Notes:

1. Data is from onsite records detailing the daily discharge volumes to Twelvemile Creek.
2. Data is recorded by Clean Harbors and then reviewed and approved by the Rogers and Callcott certified water treatment plant operator.
3. The bolded value is the maximum daily discharge recorded. Permitted long term average flow is 5.76 MGD.

Superscript Notes:

¹Discharge reporting requirements are outlined in the 10/15/2009 letter from Butch Swygert (South Carolina Department of Health and Environmental Control) to Chris Moody (ARCADIS).

Acronyms and Abbreviations:

Avg. - Average

Max. - Maximum

MGD - million gallons per day

MR - Monitor and report

ND - no discharge to creek

Table 2. Effluent Sampling Result for April 2010. Twelve-mile Creek Restoration Project, Pickens County

Sample ID	Location	Sample Type	Week	Sample Date and Time	pH	Temp. (°C)	TSS (mg/L)	PCB (µg/L)						
								PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260
Monthly Avg.	-	-	-	-	6.0 to 8.5	-	25	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Daily Max.	-	-	-	-	6.0 to 8.5	-	45	0.5	0.5	0.5	0.5	0.5	0.5	0.5
AC76296	WTP Effluent Discharge	G	1	4/6/10 12:10	6.0 to 8.5	27.0	NA	NA	NA	NA	NA	NA	NA	NA
AC76298	WTP Effluent Discharge	C		4/6/10 11:45	NA	NA	13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AC76537	WTP Effluent Discharge	G	1	4/8/10 13:30	8.2	21.0	NA	NA	NA	NA	NA	NA	NA	NA
AC76886	WTP Effluent Discharge	G		4/13/10 10:25	6.6	18.0	NA	NA	NA	NA	NA	NA	NA	NA
AC76887	WTP Effluent Discharge	C	2	4/13/10 10:20	NA	NA	150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
AC77649	WTP Effluent Discharge	-		4/19/10 0:00	-	-	-	No Discharge						
AC77495	WTP Effluent Discharge	G	3	4/22/10 9:00	NA	NA	5.0	NA	NA	NA	NA	NA	NA	NA
AC77714	WTP Effluent Discharge	G		4/27/10 10:45	6.6	19.2	NA	NA	NA	NA	NA	NA	NA	NA
AC77715	WTP Effluent Discharge	C	4	4/27/10 10:40	NA	NA	26	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Average				7.5	22.4	NA	-	-	-	-	-	-	-

Notes:

- Sampling results compiled from Laboratory Services Reports provided by Rogers & Calcott Laboratory Services and submitted in tabular form as required per the 10/15/2009 letter from Butch Swygent (South Carolina Department of Health and Environmental Control) to Chris Moody (ARCADIS) and the 3/11/2010 SCDHEC construction and operational approval memorandum.
- The monthly average includes not detected parameters (indicated by "<") and assumes a value equal to the detection limit. Monthly averages are not calculated for parameters without a detected concentration (indicated by "-").
- Shaded cells indicate the parameter is outside the range of acceptable values specified in the 10/15/2009 letter from Butch Swygent to Chris Moody (ARCADIS).

Superscript Note:

¹ Discharge reporting requirements and limits are outlined in the 10/15/2009 letter from Butch Swygent (South Carolina Department of Health and Environmental Control) to Chris Moody (ARCADIS)

² The following flag was provided in the Laboratory Services Report for the detected PCB on 4/13/2010: "Due to weathering, an exact match was not found for an Aroclor, but Aroclor 1248 was judged to be the best fit. The quantitation was performed by measuring the total area of the PCB pattern and quantitation on the basis of Aroclor 1248, which was most similar to the sample."

³ Value is highly influenced by the TSS exceedance on 4/13/2010. The average TSS for the month when the 4/13/2010 is not incorporated is 15 mg/L, which is within the acceptable range outlined in the 10/15/09 letter.

Acronyms and Abbreviations:

°C - degrees centigrade

G - grab sample

C - 24-hour composite sample

ID - identification

µg/L - micrograms/liter

MGD - million gallons per day

mg/L - milligrams per liter

NA - not analyzed

PCB - polychlorinated biphenyl

Temp. - temperature

Table 3. Whole Effluent Toxicity Result for April 2010. Twelvemile Creek Restoration Project, Pickens County

Sample	WET Analysis	Discharge Limits		
		Monthly Avg.	Maximum ¹	Results
AC76292, AC76395, & AC77671	<i>Ceriodaphnia dubia</i> Chronic WET @ CTC=17.4%	25%	40%	PASS (4.9%)
	<i>Ceriodaphnia dubia</i> Chronic WET-Reproduction @ CTC=17.4%	MR, %	MR, %	PASS (4.9%)
	<i>Ceriodaphnia dubia</i> Chronic WET-Survival @ CTC=17.4%	MR, %	MR, %	PASS (0%)
AC76291& AC76292	<i>Ceriodaphnia dubia</i> Acute WET @ ATC=35.5%	—	0 ²	PASS (0% Grab) PASS (0% Composite)

Notes:

1. Samples for the WET testing were collected on 4/6/2010 (AC76291, AC76292), 4/7/2010 (AC76396), and 4/9/2010 (AC77671). AC76291 was a grab sample while all other samples were 24-hour composite samples.

Superscript Notes:

¹ Discharge reporting requirements and limits are outlined in the 10/15/2009 letter from Butch Swygert (South Carolina Department of Health and Environmental Control) to Chris Moody (ARCADIS)

² A result of "0" indicates a passing result. Both grab and composite samples were collected on 4/6/2010 for Acute WET testing.

Acronyms and Abbreviations:

MR - monitor and report

WET - whole effluent toxicity

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Attachments

ARCADIS

Attachment A

**Laboratory Services Report:
October 15, 2009 Table 1
Analyses**



**ROGERS & CALLCOTT
LABORATORY SERVICES**

AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606
Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client: Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom

Date Received: 04/06/2010

South Carolina Laboratory Identification 23105

Time Received: 14:50

North Carolina Laboratory Certificate Number 27

Date Reported: 04/08/2010

NELAP Laboratory Identification E87822

Sample Number

Sample Description



AC76296 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,
collected on 04/06/2010 at 12:10



AC76298 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge
composite, collected on 04/06/2010 at 11:45

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

[Signature]
authorized signature

Results reviewed by:

[Signature]

Carbon copy: email-Gary Odom and Lance Ketcham

This report may not be reproduced, except in full, without written permission from Rogers & Callcott, Inc.

<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
pH (Field)	8.6	pH units		0.1	04/06/2010 12:10	LRW	SM 4500HB
Temperature (Field)	27.0	degrees C		0.1	04/06/2010 12:10	LRW	SM 2550B
<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
AC76298	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 04/06/2010 at 12:10						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24 hr Composite Sampling	Completed				04/06/2010 11:45	LRW	Composite
Total Suspended Solids	13	mg/l		2.0	04/07/2010 15:34	CEZ	SM 2540D
Polychlorinated Biphenyls (PCBs)							
PCB-1016	< RDL	ug/l		0.5	04/08/2010 01:39	RKH	EPA 608
PCB-1221	< RDL	ug/l		0.5	04/08/2010 01:39	RKH	EPA 608
PCB-1232	< RDL	ug/l		0.5	04/08/2010 01:39	RKH	EPA 608
PCB-1242	< RDL	ug/l		0.5	04/08/2010 01:39	RKH	EPA 608
PCB-1248	< RDL	ug/l		0.5	04/08/2010 01:39	RKH	EPA 608
PCB-1254	< RDL	ug/l		0.5	04/08/2010 01:39	RKH	EPA 608
PCB-1280	< RDL	ug/l		0.5	04/08/2010 01:39	RKH	EPA 608
2,4,5,6-Tetrachloro-m-xylene, (Surrogate)	112	%		0	04/08/2010 01:39	RKH	EPA 608
Decachlorobiphenyl, (Surrogate)	102	%		0	04/08/2010 01:39	RKH	EPA 608
Liquid-Liquid Extraction/Pest/PCB 608	Completed				04/07/2010 08:40	CGW	EPA 608



ROGERS & CALCOTT
LABORATORY SERVICES

P.O. Box 5655, Greenville, SC 29606
Phone (864) 232-1556 Fax (864) 232-6140
Shipping Address: 426 Fairforest Way
Greenville, SC 29607

Client Name Schlum Berger
Address _____
Report To: GARY ODOM
Telephone No. _____ FAX No. _____
PO No. _____ Project No. JMC

Rogers & Calcott Lab No.	Yr/ Date	Time	Sample Description	Total Number of Containers		PARAMETERS	Preserved (Code)
				1	1		
AC 76298	4/6/10	1145	WATER TREATMENT plant DISCHARGE EFFLUENT	1	1	TSS	A-None D-NaOH G-Boric Acid
↓	4/6	1145	"	1	1-N	PCB	B-HNO ₃ E-HCl H-Ascorbic Acid
C							C-H ₂ SO ₄ F-Na ₂ S ₂ O ₃ I-

SAMPLER Relinquished by (Sig.) <u>John M. Berger</u>	Date/Time 4/6/10 1450	Received by (Sig.) <u>②</u> Shipper Name & # <u>John M. Berger</u>	Date/Time 4.6.10 1450	KNOWN HAZARDS ASSOCIATED WITH SAMPLES
Relinquished by (Sig.) <u>③</u>	Date/Time	Received by (Sig.) <u>④</u> Shipper Name & #	Date/Time	Temperature of blank or representative sample
Relinquished by (Sig.) <u>⑤</u>	Date/Time	Received by (Sig.) <u>⑥</u> Shipper Name & #	Date/Time	At time of collection <u>3.3</u> °C
Seal # <u> </u> at'chd. by <u> </u> Recvd. Intact by <u> </u> Seal # <u> </u> at'chd by <u> </u> Recvd. Intact by <u> </u>				At time of lab receipt <u>3.2</u> °C

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

N / N	Filtered (Yes/No)
Y Y	Cooled (Yes/No)
P G	Container Type (P/G)
Y G D H L	Container Volume
C C	Sample Type (Grab/Composite)
W W W W	Sample Source (WW, GW, DW, Other)
N N	Sample Source Chlorinated (Yes/No)
N A Neg	Lab Receipt Cl. Check <u>mca/</u>
N A 7	Lab Receipt pH Check <u>4-8-10</u>
A A	Preserved (Code)

A-None D-NaOH G-Boric Acid
B-HNO₃ E-HCl H-Ascorbic Acid
C-H₂SO₄ F-Na₂S₂O₃ I-

COMMENTS:

SAMPLER SET OUT @ 1230
ON 4/5/10 TIME PROPORTIONAL
AC 76298
pH 8.6 GRAB TAKEN & READ
Temp 27.0°C 1/210, 4/6/10
pH 8.7 DUPLICATED READ
Temp 27.2°C 1/215 4/6/10



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Laboratory Services Report

Client: Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom

Date Received: 04/08/2010

South Carolina Laboratory Identification 23105

Time Received: 15:45

North Carolina Laboratory Certificate Number 27

Date Reported: 04/09/2010

NELAP Laboratory Identification E87822

Sample Number

Sample Description



AC76537 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,
collected on 04/08/2010 at 13:30

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have compiled with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

[Signature]
authorized signature

Results reviewed by:

[Signature]

Carbon copy: email-Gary Odom and Lance Ketcham

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<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
ACT6637	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 04/08/2010 at 13:30						
pH (Field)	8.2	pH units		0.1	04/08/2010 13:30	LRW	SM 4500HB
Temperature(Field)	21.0	degrees C		0.1	04/08/2010 13:30	LRW	SM 2560B



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Client Name SCHLUM BERGER

Address _____

Report To: CARY ODOM

Telephone No. _____ FAX No. _____

PO No. _____ Project No. JMC

Rogers & Callcott Lab No.	Yr./D Date	Time	Sample Description
AC 70537	4/8	1330	WATER TREATMENT EQUIPMENT

SAMPLED Relinquished by (Sig.) <u>① Cary Odom</u>	Date/Time 4/8/10 1345	Received by (Sig.) ② Norma Valley Shipper Name & #	Date/Time 4/8/10 1545	KNOWN HAZARDS ASSOCIATED WITH SAMPLES
Relinquished by (Sig.) <u>③</u>	Date/Time 	Received by (Sig.) ④ Shipper Name & #	Date/Time 4/9/10	
Relinquished by (Sig.) <u>⑤</u>	Date/Time 	Received by (Sig.) ⑤ Shipper Name & #	Date/Time 	Temperature of blank or representative sample At time of collection _____ °C
Seal # _____ at'chd by <input type="radio"/> Recvd. Intact by <input type="radio"/>	Seal # _____ at'chd by <input type="radio"/> Recvd. Intact by <input type="radio"/>			At time of lab receipt NA °C

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

Total Number of Containers	PARAMETERS	Filtered (Yes/No)	
		Cooled (Yes/No)	
		Container Type (P/G)	
		Container Volume	
		Sample Type (Grab/Composite)	
		Sample Source (WW, GW, DW, Other)	
		Sample Source Chlorinated (Yes/No)	
		Lab Receipt Cl. Check	
		Lab Receipt pH Check	
		Preserved (Code)	
		A=None D=NaOH G=Boric Acid B=HNO ₃ E=HCl H=Ascorbic Acid C=H ₂ SO ₄ F=Na ₂ S ₂ O ₃ I=_____	
		COMMENTS:	
		<u>FIELD DATA</u>	
		<u>GRAB TAKEN AND READ</u>	
		<u>c. 1330, 4/8/10</u>	
		<u>By RJC</u>	
		<u>pH 8.2</u>	
		<u>Temp 21.0</u>	



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Laboratory Services Report

Client: Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom

Date Received: 04/13/2010

South Carolina Laboratory Identification 23105

Time Received: 11:32

North Carolina Laboratory Certificate Number 27

Date Reported: 04/15/2010

NELAP Laboratory Identification E87822

Sample Number

Sample Description



AC76886 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,
collected on 04/13/2010 at 10:25



AC76887 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge
composite, collected on 04/13/2010 at 10:20

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Dawn Dennis
authorized signature

Results reviewed by:

SJ

Carbon copy: email to Gary Odom and Jim Kirlin

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<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
AC76886	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab, collected on 04/13/2010 at 10:25						
pH (Field)	6.6	pH units		0.1	04/13/2010 10:25	LRW	SM 4500HB
Temperature (Field)	18.0	degrees C		0.1	04/13/2010 10:25	LRW	SM 2550B
<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
AC76887	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge composite, collected on 04/13/2010 at 10:20						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24 hr Composite Sampling	Completed				04/13/2010 10:20	LRW	Composite
Total Suspended Solids	190	mg/l		2.0	04/13/2010 15:35	CEZ	SM 2540D
Polychlorinated Biphenyls (PCBs)							
PCB-1016	< RDL	ug/l		0.5	04/14/2010 19:42	RKH	EPA 608
PCB-1221	< RDL	ug/l		0.5	04/14/2010 19:42	RKH	EPA 608
PCB-1232	< RDL	ug/l		0.5	04/14/2010 19:42	RKH	EPA 608
PCB-1242	< RDL	ug/l		0.5	04/14/2010 19:42	RKH	EPA 608
PCB-1248	0.62	ug/l	Z1	0.5	04/14/2010 19:42	RKH	EPA 608
PCB-1254	< RDL	ug/l		0.5	04/14/2010 19:42	RKH	EPA 608
PCB-1260	< RDL	ug/l		0.5	04/14/2010 19:42	RKH	EPA 608
2,4,5,6-Tetrachloro-m-xylene, (Surrogate)	120	%		0	04/14/2010 19:42	RKH	EPA 608
Decachlorobiphenyl, (Surrogate)	90	%		0	04/14/2010 19:42	RKH	EPA 608
Analysis comment for Polychlorinated Biphenyls (PCBs): Z1 -Due to weathering, an exact match was not found for an Aroclor, but Aroclor 1248 was judged to be the best fit. The quantitation was performed by measuring the total area of the PCB pattern and quantitating on the basis of Aroclor 1248, which was the most similar to the sample.							
Liquid-liquid Extraction Pestic/PCB 608	Completed				04/13/2010 12:30	DBB	EPA 608

Rogers and Callcott Laboratory Services
Method Blank Quality Control Report

Blank 10-04-13-07
Extraction Date 4/13/2010
Analysis Date 4/14/2010
Method EPA 608
Instrument 610N0123103
Analyst RKH

PCB

Compound	Result (ug/L)
PCB-1016	< 0.5
PCB-1221	< 0.5
PCB-1232	< 0.5
PCB-1242	< 0.5
PCB-1248	< 0.5
PCB-1254	< 0.5
PCB-1260	< 0.5

PCBs
EPA 608
Laboratory Control Sample

Analysis Date: 4/14/2010

Extraction Date: 4/13/2010

Matrix: water

LCS ID: 10-04-13-11

Instrument: 610N0123103

Primary Column: RTX-1701

Confirmation Column: CLPesticides 2

Analyst: RKH

Primary Column:

Compound	LCS Conc. ($\mu\text{g/L}$)	LCS On-Column Result ($\mu\text{g/L}$)	LCS Recovery, %	LCS Recovery Limits, %
PCB-1248	1.000	1.1874	118.7	38-158

Confirmation Column:

Compound	LCS Conc. ($\mu\text{g/L}$)	LCS On-Column Result ($\mu\text{g/L}$)	LCS Recovery, %	LCS Recovery Limits, %
PCB-1248	1.000	1.1230	112.3	38-158

PCBs
EPA 608
Quality Control

Sample #	AC78887
Client:	Schlumberger - WTP
Analysis Date:	4/14/2010
Extraction Date:	4/13/2010
Dilution Factor	4

Instrument: PE 610N0123103
Primary Column: RTX-1701
Confirmation Column: CLP2
Analyst: RKH
Spike ID: 10-04-13-14 / 10-04-13-15

Primary Column:

Compound	Spike Conc. ($\mu\text{g/L}$)	Sample On-Column Result ($\mu\text{g/L}$)	MS On-Column Result ($\mu\text{g/L}$)	Spike Recovery, %	MSD On-Column Result ($\mu\text{g/L}$)	MSD Recovery, %	RPD	Spike Recovery Limits, %	RPD Limits
PCB-1248	0.2500	0.0000	0.3003	120.1	0.2984	118.6	1.31	38-158	20

Confirmation Column:

Compound	Spike Conc. ($\mu\text{g/L}$)	Sample On-Column Result ($\mu\text{g/L}$)	MS On-Column Result ($\mu\text{g/L}$)	Spike Recovery, %	MSD On-Column Result ($\mu\text{g/L}$)	MSD Recovery, %	RPD	Spike Recovery Limits, %	RPD Limits
PCB-1248	0.2500	0.0000	0.2860	114.4	0.2734	109.4	4.50	38-158	20

Rogers and Calcott

Project: Schlumberger - Twelve Mile Creek

Quality Control Summary

Total Suspended Solids - SM 2540D

Analyst: CEZ

Analyzed: 04-2010

Batch #: 041310

Samples: AC76887

Method Blank

<u>Parameter</u>	<u>Result, mg/L</u>
TSS	< 2.0

Duplicate

<u>Sample #</u>	<u>Parameter</u>	<u>Duplicate</u>		<u>Range of Duplicate</u>	
		<u>Result, mg/L</u>	<u>Result, mg/L</u>	<u>Acceptability</u>	
AC76887	TSS	190	193	182	201



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Client Name: SCHLUMBERGER

Address _____

Report To: _____

Telephone No. _____ FAX No. _____

PO No. _____ Project No. JMC

Rogers & Calcott Lab No.	Yr/ Date	Time	Sample Description
AC 746887	4/13/20	10:20	WATER TREATMENT EFF DISCHARGE

SAMPLER Relinquished by (Sig.) <i>Karen Wad</i>	Date/Time 4/13/10 1132	Received by (Sig.) ② <i>KR</i> Shipper Name & #	Date/Time 4.13.10 1132	KNOWN HAZARDS ASSOCIATED WITH SAMPLES SUFFICIENT SAMPLE TAKEN FOR FIELD Duplicities
Relinquished by (Sig.) ③	Date/Time 	Received by (Sig.) ④ Shipper Name & #	Date/Time 	Temperature of blank or representative sample
Relinquished by (Sig.) ⑤	Date/Time 	Received by (Sig.) ⑥ Shipper Name & #	Date/Time 	At time of collection <u>3.0</u> °C
Seal # at'chd by ○ Recvd. Intact by ○ Seal # at'chd by ○ Recvd. Intact by ○				At time of lab receipt <u>4.3</u> °C

Form Revised July 2008

R/C COC FORM



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Laboratory Services Report

Client: Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom by email

Date Received: 04/19/2010

South Carolina Laboratory Identification 23105

Time Received: 00:00

North Carolina Laboratory Certificate Number 27

Date Reported: 04/28/2010

NELAP Laboratory Identification E87822

Sample Number

Sample Description



AC77849 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge ,
collected on 04/19/2010 at 00:00

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Anne Dennis
authorized signature

Results reviewed by:

SJ

Carbon copy: Email to Lance Ketcham, Arcadis

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<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
AC77849	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge				collected on 04/19/2010 at 00:00		
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
Flow, gpd	See Comment	gpd			04/19/2010 00:00		

Analysis comment for Flow, gpd: No sample taken due to no discharge



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Client Name SCHLUMBERGER

Address _____

Report To: _____

Telephone No. _____ FAX No. _____

PO No. _____ Project No. JMC

Rogers & Calcott Lab No.	Yr <u>10</u> Date	Time	Sample Description	Total Number of Containers	PARAMETERS	A A	N/A Y Y P G LC 234 C C WWWW N N	Filtered (Yes/No)	Cooled (Yes/No)	Container Type (P/G)	Container Volume
				1							
AC 77049	4/19	*	WATER TREATMENT PLANT <u>PLAN 2</u> EFFLUENT DISCHARGE	1	T ₁ P _C B						

SAMPLER Relinquished by (Sig.) <u>①</u>	Date/Time 	Received by (Sig.) <u>②</u> Shipper Name & #	Date/Time 	KNOWN HAZARDS ASSOCIATED WITH SAMPLES * NO SAMPLE TAKEN DUE TO NO DISCHARGE (THEY DID NOT DISCHARGE) THE ENTIRE WEEK
Relinquished by (Sig.) <u>③</u>	Date/Time 	Received by (Sig.) <u>④</u> Shipper Name & #	Date/Time 	
Relinquished by (Sig.) <u>⑤</u>	Date/Time 	Received by (Sig.) <u>⑥</u> Shipper Name & #	Date/Time 	Temperature of blank or representative sample At time of collection _____ °C At time of lab receipt _____ °C
Seal # at'chd by ○ Recvd. Intact by ○ Seal # at'chd by ○ Recvd. Intact by ○				R/C COC FORM



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Laboratory Services Report

Client: Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom

Date Received: 04/22/2010

South Carolina Laboratory Identification 23105

Time Received: 09:55

North Carolina Laboratory Certificate Number 27

Date Reported: 04/22/2010

NELAP Laboratory Identification E87822

	Sample Number	Sample Description
	AC77489	Schlumberger Technology TMC Influent grab, collected on 04/22/2010 at 08:40
	AC77490	Schlumberger Technology TMC A Train Bag Filter grab, collected on 04/22/2010 at 08:55
	AC77491	Schlumberger Technology TMC B Train Bag Filter grab, collected on 04/22/2010 at 08:48
	AC77492	Schlumberger Technology TMC C Train Bag Filter grab, collected on 04/22/2010 at 08:45
	AC77493	Schlumberger Technology TMC D Train Bag Filter grab, collected on 04/22/2010 at 08:35
	AC77494	Schlumberger Technology TMC E Train Bag Filter grab, collected on 04/22/2010 at 08:38
	AC77495	Schlumberger Technology TMC Effluent grab, collected on 04/22/2010 at 09:00

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Amy J. Ashley
authorized signature

Results reviewed by:

JG

Carbon copy: G Odom, L Ketcham, G Maalouf, R Ward

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<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24 to 48 hr turn around	Completed				04/22/2010 00:00		
Total Suspended Solids	<RDL	mg/l		2.0	04/22/2010 10:30	CEZ	SM 2540D

<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24 to 48 hr turn around	Completed				04/22/2010 00:00		
Total Suspended Solids	10	mg/l		2.0	04/22/2010 10:30	CEZ	SM 2540D

<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24 to 48 hr turn around	Completed				04/22/2010 00:00		
Total Suspended Solids	10	mg/l		2.0	04/22/2010 10:30	CEZ	SM 2540D

<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24 to 48 hr turn around	Completed				04/22/2010 00:00		
Total Suspended Solids	5.0	mg/l		2.0	04/22/2010 10:30	CEZ	SM 2540D

<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24 to 48 hr turn around	Completed				04/22/2010 00:00		
Total Suspended Solids	2.0	mg/l		2.0	04/22/2010 10:30	CEZ	SM 2540D

<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24 to 48 hr turn around	Completed				04/22/2010 00:00		
Total Suspended Solids	<RDL	mg/l		2.0	04/22/2010 10:30	CEZ	SM 2540D

<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
AC77495	Schlumberger Technology TMC Effluent grab, collected on 04/22/2010 at 09:00						
24 to 48 hr turn around	Completed				04/22/2010 10:30	CEZ	
Total Suspended Solids	5.0	mg/l		2.0	04/22/2010 10:30	CEZ	SM 2540D



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Shipping Address: 426 Fairforest Way
Greenville, SC 29607

Client Name Schlum Berger
Address _____
Report To: _____
Telephone No. _____ FAX No. _____
PO No. _____ Project No. JMC

Rogers & Callcott Lab No.	Yr/ Date	Time	Sample Description
77484	4/22	0840	INFLUENT
77490		0855	"A" TRAIN BAG FILTER
77491		0848	"B" TRAIN BAG FILTER
77492		0845	"C" TRAIN BAG FILTER
77493		0835	"D" TRAIN BAG FILTER
77494		0836	"E" TRAIN BAG FILTER
77495	↓	0900	* EFFLUENT *

SAMPLED Relinquished by (Sig.) <u>Logan Wink</u>	Date/Time 4/22/10 0955	Received by (Sig.) ② <u>JK</u> Shipper Name & #	Date/Time 4/22/10 0955
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④	Date/Time
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥	Date/Time

Seal # at'chd by ○ Recvd. Intact by ○ Seal # at'chd by ○ Recvd. Intact by ○

Form Revised July 2008

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

Total Number of Containers	PARAMETERS	N										Filtered (Yes/No)		
		Y										Cooled (Yes/No)		
		P										Container Type (P/G)		
		G										Container Volume		
		NN										Sample Type (Grab/Composite)		
		N										Sample Source (WW, GW, DW, Other)		
		NA										Sample Source Chlorinated (Yes/No)		
		NA										Lab Receipt Cl. Check <u>KWR</u>		
		A										Lab Receipt pH Check <u>4.82</u>		
												Preserved (Code)		
												A-None B-HNO ₃ C-H ₂ SO ₄ F-Na ₂ S ₂ O ₃	D-NaOH E-HCl H-Ascorbic Acid	G-Basic Acid I-
												COMMENTS:		
												<u>GRABS TAKEN BY R+C</u>		
												KNOWN HAZARDS ASSOCIATED WITH SAMPLES * NO DISCHARGE TO THE RIVER		
												Temperature of blank or representative sample		
												At time of collection _____ °C		
												At time of lab receipt <u>15.5</u> °C		
												R/C COC FORM		



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② Phone: (864) 232-1556 - FAX: (864) 232-6140

AN EMPLOYEE-OWNED COMPANY

Laboratory Services Report

Client: Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom by email

Date Received: 04/27/2010

South Carolina Laboratory Identification 23105

Time Received: 12:02

North Carolina Laboratory Certificate Number 27

Date Reported: 04/29/2010

NELAP Laboratory Identification E87822

Sample Number

Sample Description



AC77714 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,
collected on 04/27/2010 at 10:45



AC77715 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge
composite, collected on 04/27/2010 at 10:40

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Anne Dennis
authorized signature

Results reviewed by:

JW

Carbon copy: Email to Lance Ketcham, Arcadis

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<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
pH (Field)	6.6	pH units		0.1	04/27/2010 10:45	LRW	SM 4600HB
Temperature (Field)	19.2	degrees C		0.1	04/27/2010 10:45	LRW	SM 2650B
<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
ACT7715	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge composite, collected on 04/27/2010 at 10:40						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
24-hr Composite Sampling	Completed				04/27/2010 10:40	LRW	Composite
Total Suspended Solids	26	mg/l		2.0	04/27/2010 12:10	CEZ	SM 2540D
Polychlorinated Biphenyls (PCBs)							
PCB-1016	< RDL	ug/l		0.5	04/28/2010 18:52	RKH	EPA 608
PCB-1221	< RDL	ug/l		0.5	04/28/2010 18:52	RKH	EPA 608
PCB-1232	< RDL	ug/l		0.5	04/28/2010 18:52	RKH	EPA 608
PCB-1242	< RDL	ug/l		0.5	04/28/2010 18:52	RKH	EPA 608
PCB-1248	< RDL	ug/l		0.5	04/28/2010 18:52	RKH	EPA 608
PCB-1264	< RDL	ug/l		0.5	04/28/2010 18:52	RKH	EPA 608
PCB-1260	< RDL	ug/l		0.5	04/28/2010 18:52	RKH	EPA 608
2,4,5,6-Tetrachloro-m-xylene, (Surrogate)	118	%		0	04/28/2010 18:52	RKH	EPA 608
Decachlorobiphenyl, (Surrogate)	98	%		0	04/28/2010 18:52	RKH	EPA 608
Liquid-Liquid Extraction/Pest/PCB 608	Completed				04/27/2010 12:30	DBB	EPA 608



ROGERS & CALLCOTT

LABORATORY SERVICES

P.O. Box 5855, Greenville, SC 29606
Phone (864) 232-1556 Fax (864) 232-6140
Shipping Address: 426 Fairforest Way
Greenville, SC 29607

Client Name SCHLUMBERGER
Address _____
Report To: _____
Telephone No. _____ FAX No. _____
PO No. _____ Project No. TMC

Rogers & Cailcott Lab No.	Yr 10 Date	Time	Sample Description
77715	4/27	1040	WATER TREATMENT PLANT EFFLUENT DISCHARGE

SAMPLER Relinquished by (Sig.) <u>①</u> <u>Land Meier</u>	Date/Time <u>4/27/10/2022</u>	Received by <u>② Chay</u> Shipper Name
Relinquished by (Sig.) <u>③</u>	Date/Time	Received by <u>④</u> Shipper Name
Relinquished by (Sig.) <u>⑤</u>	Date/Time	Received by <u>⑥</u> Shipper Name
Seal #	at'chd by <input type="radio"/>	Recvd. Intact by <input type="radio"/>

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

Total Number of Containers	N	N	Filtered (Yes/No)									
	Y	Y	Cooled (Yes/No)									
	P	G	Container Type (P/G)									
	L	2X4	Container Volume									
	C	C	Sample Type (Grab/Composite)									
	NN	NN	Sample Source (WW, GW, DW, Other)									
	N	N	Sample Source Chlorinated (Yes/No)									
	NA	very	Lab Receipt Cl ₆ Check <i>b/wtr</i>									
	NA	Neutral	Lab Receipt pH Check 4.21									
	A	A	Preserved (Code)									
PARAMETERS	TSS	OCB	<table border="0"> <tr> <td>A-None</td><td>D-NaOH</td><td>G-Boric Acid</td></tr> <tr> <td>B-HNO₃</td><td>E-HCl</td><td>H-Ascorbic Acid</td></tr> <tr> <td>C-H₂SO₄</td><td>F-Na₂S₂O₃</td><td>I-_____</td></tr> </table>	A-None	D-NaOH	G-Boric Acid	B-HNO ₃	E-HCl	H-Ascorbic Acid	C-H ₂ SO ₄	F-Na ₂ S ₂ O ₃	I-_____
A-None	D-NaOH	G-Boric Acid										
B-HNO ₃	E-HCl	H-Ascorbic Acid										
C-H ₂ SO ₄	F-Na ₂ S ₂ O ₃	I-_____										
2	1	1-N	<p>COMMENTS:</p> <p>SAMPLER SET OUT @ 0940 on 4/26/10, Time prop. by R+C</p> <p>AC77714</p> <p>pH 6.6 > GRAB TAKEN + Temp 19.2 > READ @ 1045 on 4/27/10 by R+C</p>									
3.)	Date/Time	KNOWN HAZARDS ASSOCIATED WITH SAMPLES										
#	4/27/10 1202											
3.)	Date/Time											
#												
3.)	Date/Time	Temperature of blank or representative sample										
#		At time of collection 2.8 °C										
#		At time of lab receipt 5.6 °C										
at chd by	Revd. Intact by											

ARCADIS

Attachment B

**Laboratory Services Report:
Whole Effluent Toxicity Testing**



**ROGERS & CALLCOTT
LABORATORY SERVICES**

AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606
Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client: Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom

Date Received: 04/06/2010

South Carolina Laboratory Identification 23105

Time Received: 14:25

North Carolina Laboratory Certificate Number 27

Date Reported: 04/15/2010

NELAP Laboratory Identification E87822

Sample Number

Sample Description



AC76291 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge grab,
collected on 04/06/2010 at 12:00



AC76292 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge
composite, collected on 04/06/2010 at 11:45

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Anne Flannery
authorized signature

Results reviewed by:

SJB

Carbon copy: email to Gary Odom and Jim Kirlin

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<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
Subcontracted Sample Analysis	Completed				04/15/2010 00:00		

Analysis comment for Subcontracted Sample Analysis: See enclosed subcontract report which includes a total of 17 pages for Acute Toxicity from ETT Environmental Inc.

<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
Subcontracted Sample Analysis	Completed				04/15/2010 00:00		

Analysis comment for Subcontracted Sample Analysis: See enclosed subcontract report which includes a total of 17 pages for Acute and Chronic Toxicity from ETT Environmental Inc.



ROGERS & CALLCOTT

LABORATORY SERVICES

P.O. Box 5655, Greenville, SC 29606
 Phone (864) 232-1556 Fax (864) 232-6140
 Shipping Address: 426 Fairforest Way
 Greenville, SC 29607

Client Name: Rogers + Callcott
 Address: _____
 Report To: _____
 Telephone No. _____ FAX No. _____
 PO No. _____ Project No. TMC

Rogers & Callcott Lab No.	Yr/ Date	Time	Sample Description	Total Number of Containers
				A
1	10/29/10	11:15	WATER TREATMENT PLANT DISCHARGE EFFLUENT	2
AC	10/29/10	12:00	11	2

SAMPLER ①	Date/Time 10/29/10 11:25	Received by (Sig.) ② <u>K. Hall</u> Shipper Name & #	Date/Time 10/29/10 11:25
Reinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④	Date/Time
Reinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥	Date/Time

Seal # at'chd by Recvd. Intact by Seal # at'chd by Recvd. Intact by

Form Revised July 2008

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

				Filtered (Yes/No)
				Cooled (Yes/No)
				Container Type (P/G)
				Container Volume
				Sample Type (Grab/Composite)
				Sample Source (WW, GW, DW, Other)
				Sample Source Chlorinated (Yes/No)
				Lab Receipt Cl. Check
				Lab Receipt pH Check
				Preserved (Code)
				A=None D=NaOH G=Boric Acid B=HNO ₃ E=HCl H=Ascorbic Acid C=H ₂ SO ₄ F=Na ₂ S ₂ O ₃ I=_____
				COMMENTS:
				Sample set out 11/5/10 12:30 TIME 10/29/10 - 11/5/10 12:30 Lab received 11/5/10 12:30 P.M. R/C
				GRAB SAMPLE = 10 LITER 11/5/10 B/R/C
				KNOWN HAZARDS ASSOCIATED WITH SAMPLES * ACUTE TOXICITY ADDED 4/6/10 PW DELIVERED TO ETR
				Temperature of blank or representative sample At time of collection 23 °C At time of lab receipt 45 °C

R/C COC FORM



**ROGERS & CALLCOTT
LABORATORY SERVICES**

AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606
Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client: Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom

Date Received: 04/09/2010

South Carolina Laboratory Identification 23105

Time Received: 14:50

North Carolina Laboratory Certificate Number 27

Date Reported: 04/15/2010

NELAP Laboratory Identification E87822

Sample Number

Sample Description



AC76671 Schlumberger Technology TMC Water Treatment Plant Effluent Discharge composite, collected on 04/09/2010 at 13:10

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Anne Morris
authorized signature

Results reviewed by:

S&B

Carbon copy: email to Gary Odom and Jim Kirkin

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<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
AC76871	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge composite, collected on 04/09/2010 at 13:10						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
Subcontracted Sample Analysis	Completed				04/15/2010 00:00		
Analysis comment for Subcontracted Sample Analysis: See enclosed subcontract report which includes a total of 17 pages for Chronic Toxicity from ETT Environmental Inc.							



ROGERS & CALLCOTT LABORATORY SERVICES

P.O. Box 3655; Greenville, SC 29606
Phone (864) 232-1556 Fax (864) 232-8140
Shipping Address: 426 Fairforest Way
Greenville, SC 29607

Client Name:

Page 14 of 11

Address

Report To:

Telephone No.

PO No.

FAX No.

Project No. TMC

SAMPLER Relinquished by (Sig.) <u>①</u> <u>John Ward</u>	Date/Time <u>4/1/83 1445</u>	Received by (Sig.) <u>②</u> <u>John Ward</u>
Relinquished by (Sig.) <u>③</u>	Date/Time	Received by (Sig.) <u>④</u> <u>John Ward</u>
Relinquished by (Sig.) <u>⑤</u>	Date/Time	Received by (Sig.) <u>⑥</u> <u>John Ward</u>

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

KNOWN HAZARDS ASSOCIATED WITH SAMPLES
*** DELIVERED TO ETI**



**ROGERS & CALLCOTT
LABORATORY SERVICES**

AN EMPLOYEE-OWNED COMPANY

P.O. Box 5655, Greenville, SC 29606
Phone: (864) 232-1556 - FAX: (864) 232-6140

Laboratory Services Report

Client:
Schlumberger Technology Corporation
Sangamo - Twelve Mile Creek Project
Attention Gary Odom

Date Received: 04/07/2010

South Carolina Laboratory Identification 23105

Time Received: 14:00

North Carolina Laboratory Certificate Number 27

Date Reported: 04/15/2010

NELAP Laboratory Identification E87822



Sample Number

AC76395 - Schlumberger Technology-TMC Water Treatment Plant Effluent Discharge composite, collected on 04/07/2010 at 12:30

Sample Description

The attached report is for the samples that were received and are referenced above. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements of the NELAC standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty available upon request.

We appreciate the opportunity to be of service to you. Please contact us at (864) 232-1556 should you have any questions about this report.

Results released by:

Anne Morris

authorized signature

Results reviewed by:

SJ

Carbon copy: email to Gary Odom and Jim Kirlin

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<u>Sample Number</u>	<u>Sample Description, Date and Time Collected</u>						
AC78396	Schlumberger Technology TMC Water Treatment Plant Effluent Discharge composite, collected on 04/07/2010 at 12:30						
<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Flag</u>	<u>RDL</u>	<u>Date/Time</u>	<u>Analyst</u>	<u>Method</u>
Subcontracted Sample Analysis	Completed				04/16/2010 00:00		

Analysis comment for Subcontracted Sample Analysis: See enclosed subcontract report which includes a total of 17 pages for Chronic Toxicity from ETT Environmental Inc.



ROGERS & CALLCOTT

LABORATORY SERVICES

P.O. Box 5655, Greenville, SC 29606
Phone (864) 232-1556 Fax (864) 232-6140
Shipping Address: 426 Fairforest Way
Greenville, SC 29607

Client Name Karen L. Dillenbeck

Address _____

Report To: _____

Telephone No. _____ **FAX No.** _____

PO No. _____ Project No. TMIC

SAMPLER Relinquished by (Sig.) ①	Date/Time 4/17/11 14:30	Received by (Sig.) ② <i>K. L. W.</i> Shipper Name & #
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Shipper Name & #
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥ Shipper Name & #
Seal #	at'chd by <input type="radio"/>	Recvd. Intact by <input type="radio"/>

CHAIN OF CUSTODY RECORD

PAGE _____ OF _____

Total Number of Containers PARAMETERS	N	Filtered (Yes/No)
	Y	Cooled (Yes/No)
	P	Container Type (P/Q)
	BG	Container Volume
	C	Sample Type (Grab/Composite)
	WW	Sample Source (WW, GW, DW, Other)
		Sample Source Chlorinated (Yes/No)
		Lab Receipt Cl. Check
		Lab Receipt pH Check
	A	Preserved (Code)
	Chloride Test	A-None D-NaOH G-Boric Acid B-HNO ₃ E-HCL H-Ascorbic Acid C-H ₂ SO ₄ F-Na ₂ S ₂ O ₃ I-_____
	2	Comments: Sample container 1225 ml 1/10/96 Time of initial by PSC, T
	Date/Time:	KNOWN HAZARDS ASSOCIATED WITH SAMPLES DELIVERED TO ETT
	Date/Time:	
	Date/Time:	
	Date/Time:	Temperature of blank or representative sample
		At time of collection 33 °C
		At time of lab receipt 57 °C
at'chd by	Revd. Intact by	



(864) 877-6942 . FAX (864) 877-6938

P.O. Box 16414, Greenville, SC 29606

Craftsman Court, Greer, SC 29650

April 13, 2010

Anne Norris
Rogers & Callcott
PO Box 5655
Greenville, SC 29606

Dear Anne:

Please find enclosed the results of the most recent set of toxicity tests conducted for Rogers & Callcott. The results included pertain only the samples provided which include Rogers & Callcott Lab Nos. AC76291, AC76292, AC76395, AC76671.

If you have any questions concerning the report, please give us a call. Thank you for allowing ETT Environmental to assist Rogers & Callcott with your biological monitoring requirements.

Sincerely,

A handwritten signature in black ink that appears to read "Bob Kelley".

Robert W. Kelley, Ph.D.
Laboratory Manager

Enclosure(s)

Rec'd 4/15/2010



Test results presented in this report conform to all requirements of
NELAC, conducted under NELAC Certification Number E87819.
Florida Dept. of Health.



PROMOTE PROTECT PROSPER
South Carolina Department of Health
and Environmental Control

**DMR Attachment for Chronic
Multi-Concentration Whole Effluent
Toxicity Test Results using Linear Interpolation**

TWELVE MILE CREEK RESTORATION PROJECT Permit number: SC
FINAL LIMIT 04/01/2010-

Discharge number

Parameter Code TCP3B

MLOC=1 CTC= 17.40% effluent

Monitoring period:
From

Year	Month	Day
10	4	01

Year	Month	Day
10	4	30

Date 06-Apr-10
Lab ID 23104

IC25= 94.25 %
48 hr Chronic LC50=>100.0%

% Survival Effect at CTC= 0.0%
% Reproduction Effect at CTC= 4.9%

Group	Mortality Data		Reproduction Data	
	# Adults	# Dead	Group Average	Group Variance
0	10	0	26.7	10.01
8	10	0	26.9	7.21
17.4	10	0	25.5	10.72
35	10	1	23.9	75.88
50	10	0	24.0	10.44
100	10	0	19.6	26.04

Date
Lab ID 23104

IC25=
48 Hour Chronic LC50=

% Survival Effect at CTC=
% Reproduction Effect at CTC=

Group	Mortality Data		Reproduction Data	
	# Adults	# Dead	Group Average	Group Variance
0				
8				
17.4				
35				
50				
100				

Signature of Principal Executive Officer or Authorized Agent _____
Name/Title of Principal Executive Officer (typed or printed) _____

DHEC 3710 (8/05)

CHRONIC DEFINITIVE SURVIVAL AND REPRODUCTION TEST

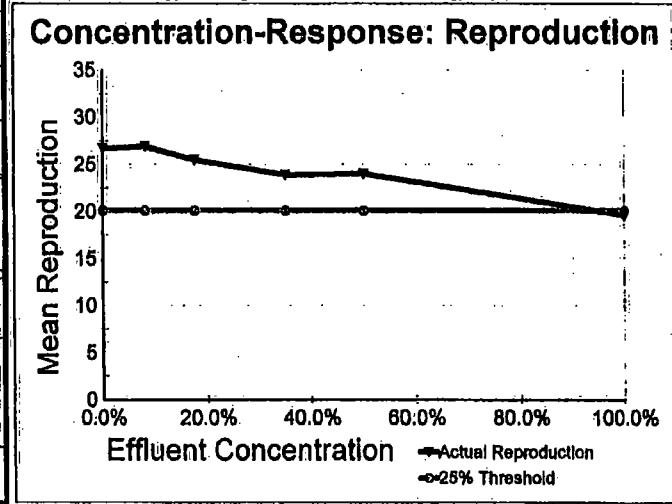
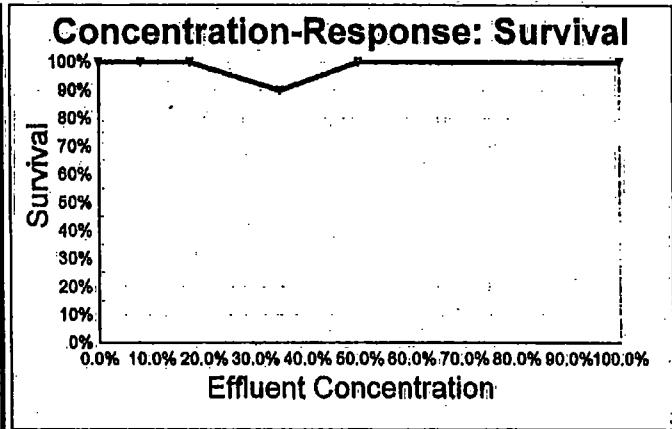
Statistical Analyses

Client: TWELVE MILE CREEK RESTORATION PROJECT
 Sample Identification: Effluent
 Test Date: 06-Apr-10

Tests for Normality and Heterogeneity of Variance						
Parameter	Test Used	Result	Critical Value			
Normality	Kolmogorov D	D= 0.911	0.895			
Variance	Bartlett's Test	B= 20.81	15.1			
The data are normal in distribution.						
The data are not homogeneous in variance.						

Sample Use	Days of Use
Sample A	Day 0,1
Sample B	Day 2,3
Sample C	Day 4,5,6

Tests for Differences in Survival and Reproduction								
Test Type Used: Linear Interpolation								
Effect	Control	8.0%	17.4%	35.0%	50.0%	100.0%		
Survival	100%	100%	100%	90%	100%	100%		
% reduction	0.0%	0.0%	10.0%	0.0%	0.0%	0.0%		
Reproduction	26.7	26.9	25.5	23.9	24.0	19.6		
% reduction (smoothed)	0.0%	4.9%	10.6%	10.6%	26.9%			
Variance	10.01	7.21	10.72	75.88	10.44	26.04		
Acceptability Criteria								
		Value	Upper Limit	Lower Limit				
CV:Coeff. of Variation		11.9%	42.0%	8.9%				
PMSD: % MSD		17.4%	37.0%	11.0%				
MSD:Min.Sign. Diff.		4.7	Acceptability criteria limits not exceeded					
IC25 Point Estimates				TEST RESULTS				
Survival	IC25=	> 100.0%			% Reduction per Linear Interpolation			
Reproduction	IC25=	94.25 %			@CTC of	17.4%		
Hypothesis Testing				Survival effect 0.0% Reproduction effect 4.9%				
NOEC(Reproduction)		50.0%						
ChV(Reproduction)		70.7%			Pass			



Comments

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)
 NAME: TWELVE MILE CREEK RESTORATION PROJECT
 ADDRESS:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
 DISCHARGE MONITORING REPORT (DMR)

MINOR

Form Approved.
 OMB No. 2040-0004

PICKENS COUNTY, SC

FACILITY: TWELVE MILE CREEK RESTORATION PROJECT
 LOCATION: PICKENS COUNTY, SC.

SC					
PERMIT NUMBER			DISCHARGE NUMBER		
MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
FROM 10	4	01	TO 10	4	30

DMR VALID: 04/01/2010-

FINAL LINES

NOTE: Read instructions before completing this form.

PARAMETER		QUANTITY OR LOADING			QUANTITY OR CONCENTRATION			NO.	FREQUENCY OF ANALYSIS	SAMPLE TYPE			
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS		
TCP3B LAB ID: 23104 %Effect Statre 7Day Chr Ceriodaphnia MLOC=1	SAMPLE MEASUREMENT	*****	*****	*****	*****	4.9	4.9	PER-CENT	0	1/90	24		
	PERMIT REQUIREMENT	*****	*****	*****	*****	0.0	0.0						
TJP3B LAB ID: 23104 %Mortality 7Day Chr CERIODAPHNIA MLOC=1	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	PER-CENT	0	1/90	24		
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****						
TVF3B LAB ID: 23104 % Repro Reduc Statre 7d Chr Ceriodaphnia MLOC=1	SAMPLE MEASUREMENT	*****	*****	*****	*****	4.9	4.9	PER-CENT	0	1/90	24		
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****						
	SAMPLE MEASUREMENT												
	PERMIT REQUIREMENT												
	SAMPLE MEASUREMENT												
	PERMIT REQUIREMENT												
	SAMPLE MEASUREMENT												
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	SAMPLE MEASUREMENT												
	PERMIT REQUIREMENT												
	SAMPLE MEASUREMENT												
	PERMIT REQUIREMENT												
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I Certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.						TELEPHONE		DATE				
TYPED OR PRINTED	I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.						SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE	JMBR	YEAR	MO	DAY
COMMENTS AND EXPLANATIONS OF ANY VIOLATIONS (Reference all attachments here)													
Chronic toxicity CPC=17.48 effluent													

		Test Day									
source	rep	1	2	3	4	5	6	7	8	Total	
N8,3/26	A			0	4	7	11			22	
N3,3/26	B			4	0	8	16			27	
M9,3/26	C			4	0	9	12			26	
FF9,3/26	D			0	5	10	14			29	
BB8,3/26	E			0	5	9	9			23	
AA3,3/26	F			0	6	8	14			28	
S3,3/26	G			5	0	9	17			31	
S4,3/26	H			4	0	7	13			24	
E4,3/26	I			5	0	8	14			27	
A3,3/26	J			5	0	10	16			31	26.7
8 %											
17.4 %											
35 %											
50 %											
100 %											
renew	BB	JG	JG	JG	JS					End Date	
fed	BB	JG	JG	JG	JS					12-Apr-10	
time fed & renew	02:46 PM	02:01 PM	01:33 PM	08:06 AM	04:18 PM					01:01 PM	JG
New temp. °C	25.1	24.6	24.3	24.6	24.5						
Old temp. °C	24.9	24.5	24.8	24.3	24.3	24.9					

Lab#	T35101
Client	SCHLUMBERGER
Sample ID	EFFLUENT
NPDES#	0
County	0
Month	4
Start & fed Date	4/6/10
Start & fed Time	1645
Started & fed By	BB
Test Organism	Ceriodaphnia dubia
Neo. born date	4/5/10
Neo. born time	BATCH 2
Test Type	SCCD
Dilution Water	MHSF
Units for Conc.	%
%3rd BROOD	
Test vessels	30 ml.
Test volume	15 ml
Incubator #	1
Light	16ft/8dk
Initial Temp. °C	25
Seleniastrum	0.05 ml
YAT	0.05 ml
Test method	EPA 621-R-02-013:1002

Comments	

D=Dead N/A=Lost or not used



ROGERS & CALLCOTT

LABORATORY SERVICES

P.O. Box 5655, Greenville, SC 29606
Phone (864) 232-1556 Fax (864) 232-6140
Shipping Address: 426 Fairforest Way
Greenville, SC 29607

Client Name POLERS + CALLOTT
Address _____

Report To: _____
Telephone No. _____ FAX No. _____
PO No. _____ Project No. JMC

Rogers & Calcott Lab No.	Yr. Date	Time	Sample Description
35101A 35102	4/6	1145	WATER TREATMENT PLANT DISCHARGE EFFLUENT
35103	4/6	1200	11

SAMPLER Relinquished by (Sig.) ① <i>Ray Miller</i>	Date/Time 4/6/10 1425	Received by (Sig.) ② <i>Karla Miller</i> Shipper Name & Address
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Shipper Name & Address
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥ Shipper Name & Address

CHAIN OF CUSTODY RECORD

PAGE _____

Total Number of Containers	PARAMETERS	N / N			Filtered (Yes/No)
		Y	Y	P	Cooled (Yes/No)
		X	X	C	Container Type (P/G)
		G	A		Container Volume
		C	G		Sample Type (Grab/Composite)
		W	W	N	Sample Source (WW, GW, DW, Other)
					Sample Source Chlorinated (Yes/No)
					Lab Receipt Cl ₂ Check
					Lab Receipt pH Check
					Preserved (Code)
					A-None D-NaOH G-Boric Acid B-HNO ₃ E-HCL H-Ascorbic Acid C-H ₂ SO ₄ F-Na ₂ S ₂ O ₃ I- _____
					COMMENTS:
2	Chlorine Toxicity	2			Sample was sent out 4/5/10 @ 1230
2	Acute Toxicity	2			Flow proportional by R/C
					GRABS TAKEN @ 1200 ON 4/6/10 BY R/C
	Date/Time	KNOWN HAZARDS ASSOCIATED WITH SAMPLES			
	4/6/10 1425				
	Date/Time				
	Date/Time				
	Date/Time	Temperature of blank or representative sample			
		At time of collection 3.3 °C			
		At time of lab receipt 4.0 °C			
at'chd by ○ Recvd. Intact by ○					



ROGERS & CALLCOTT

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Greenville, SC 29607

CHAIN OF CUSTODY RECORD

PAGE

Total Number of Containers	PARAMETERS	N		Filtered (Yes/No)
		S	P	Cooled (Yes/No)
		G		Container Type (P/G)
		E		Container Volume
		C		Sample Type (Grab/Composite)
		W		Sample Source (WW, GW, DW, Other)
		N		Sample Source Chlorinated (Yes/No)
		W		Lab Receipt Cl ₆ Check
		N		Lab Receipt pH Check
	A			Preserved (Code)
				A=None D=NaOH G=Boric Acid B=HNO ₃ E=HCL H=Ascorbic Acid C=H ₂ SO ₄ F=Na ₂ S ₂ O ₃ I=_____
				COMMENTS:
2	Chloride/Copper	2		Sample set out 1/25 at 4/6/88 Time proportional By R+C
g.)		Date/Time		KNOWN HAZARDS ASSOCIATED WITH SAMPLES
g.)		4/7-15	1400	
g.)		Date/Time		
g.)		Date/Time		Temperature of blank or representative sample
c #				At time of collection 3.3 °C
c #				At time of lab receipt 5.7 °C
at'ched by	○	Revd. Intact by	○	



ROGERS & CALLCOTT

LABORATORY SERVICES

P.O. Box 5655, Greenville, SC 29606
Phone (864) 232-1556 Fax (864) 232-6140
Shipping Address: 428 Fairforest Way
Greenville, SC 29607

Client Name

Roger St. Cocco II

Address

Report To:

Telephone No.

FAX No.

, PO No.

Project No. TMC

CHAIN OF CUSTODY RECORD

PAGE 1 OF 7

SAMPLER Relinquished by (Sig.) ① <i>[Signature]</i>	Date/Time 4/9/10 1450	Received by (Sig.) ② <i>[Signature]</i> Shipper Name & #	Date/Time 4-9-10 1450	KNOWN HAZARDS ASSOCIATED WITH SAMPLES # DELIVERED TO ETT
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④	Date/Time	
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥	Date/Time	Temperature of blank or representative sample At time of collection <u>2.9</u> °C At time of lab receipt <u>3.4</u> °C
Seal # <input type="checkbox"/> at'chd by <input type="checkbox"/> Recvd. intact by <input type="checkbox"/> Seal # <input type="checkbox"/> at'chd by <input type="checkbox"/> Recvd. intact by <input type="checkbox"/>				



ROGERS & CALCOTT LABORATORY SERVICES

P.O. Box 5655, Greenville, SC 29606
Phone (864) 232-1588 Fax (864) 232-8140
Shipping Address: 425 Fairforest Way
Greenville, SC 29607

Client Name

ROGERS & CALCOTT

Address

Report To:

Telephone No.

FAX No.

PO No.

Project No. Jmc

Rogers & Calcott Lab. No.	Yr/O Date	Time	Sample Description
16292	4/6	1445	WATER TREATMENT PLANT DISCHARGE EFFLUENT
16291	4/6	1200	"

SAMPLER Relinquished by (Sig.) <u>R. McCalluf</u>	Date/Time 4/6/10 1425	Received by (Sig.) ② <u>K. G. DeLoach</u> Shipper Name & #	Date/Time 4/6/10 1425
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④	Date/Time
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥	Date/Time

Seal # at'chd by Recvd. Intact by

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

Total Number of Containers	PARAMETERS	N N		Filtered (Yes/No)
		Y Y	P P	Cooled (Yes/No)
		Y	E E	Container Type (P/G)
		C G	W W W N	Container Volume
				Sample Type (Grab/Composite)
				Sample Source (WW, GW, DW, Other)
				Sample Source Chlorinated (Yes/No)
				Lab Receipt Cl. Check
				Lab Receipt pH Check
				Preserved (Code)
				A-None D-NaOH G-Boric Acid B-HNO ₃ E-HCl H-Acetic Acid C-H ₂ SO ₄ F-Na ₂ S ₂ O ₃ I-
				COMMENTS:
				Sampled SET OUT 4/5/10 @ 1230 Flow proportional By RIC
				GRABS TAKEN @ 1200 ON 4/6/10 By RIC
				KNOWN HAZARDS ASSOCIATED WITH SAMPLES
				Temperature of blank or representative sample
				At time of collection <u>33</u> °C
				At time of lab receipt <u>43</u> °C

Form Revised July 2008

R/C CGC FORM



ROGERS & CALLCOTT

LABORATORY SERVICES

P.O. Box 5655, Greenville, SC 29606
Phone (864) 232-1556 Fax (864) 232-5140
Shipping Address: 426 Fairforest Way
Greenville, SC 29607

Client Name Robert Carroll
Address _____

Report To: _____
Telephone No. _____ FAX No. _____
ID No. _____ Project No. TMC

CHAIN OF CUSTODY RECORD

PÁGÉ _____

Total Number of Containers	PARAMETERS	N	Filtered (Yes/No)
		Y	Cooled (Yes/No)
		LG	Container Type (P/Q)
		C	Container Volume
		WW	Sample Type (Grab/Composite)
			Sample Source (WW, GW, DW, Other)
			Sample Source Chlorinated (Yes/No)
			Lab Receipt Cl, Check
			Lab Receipt pH Check
		A	Preserved (Code)
2	2		A-None D-NaOH G-Boric Acid B-HNO ₃ E-HCl H-Ascorbic Acid C-H ₂ SO ₄ F-Na ₂ S ₂ O ₃ I-
			COMMENTS:
			Sample set out 1225 on 2/16/90 Time proportional by R/C

Seal #: Attached by Recvd-Intact by Seal #: Attached by Recvd-Intact by



**DMR Attachment for Pass/Fail:
Whole Effluent Toxicity Test Results**

TWELVE MILE CREEK RESTORATION PROJ

FINAL LIMITS 4/01/2010-

Permit number SC

Discharge number

Parameter Code TAA3B MLOC=1 35.5% effluent

South Carolina Department of Health
and Environmental ControlMonitoring period
From:

Year	Month	Day
10	4	01

Year	Month	Day
10	4	30

Mortality Data - Acute and Chronic TestsReproduction Data-Chronic Tests Only

Date 06-Apr-10

Lab ID 23104

Group	# Adults	# Dead	Pass/Fail	Average	Variance	Pass/Fail
Control	20	0	Pass			
Test	20	0				

Mortality Data - Acute and Chronic TestsReproduction Data-Chronic Tests Only

Date _____

Lab ID _____

Group	# Adults	# Dead	Pass/Fail	Average	Variance	Pass/Fail
Control						
Test						

Mortality Data - Acute and Chronic TestsReproduction Data-Chronic Tests Only

Date _____

Lab ID _____

Group	# Adults	# Dead	Pass/Fail	Average	Variance	Pass/Fail
Control						
Test						

Mortality Data - Acute and Chronic TestsReproduction Data-Chronic Tests Only

Date _____

Lab ID _____

Group	# Adults	# Dead	Pass/Fail	Average	Variance	Pass/Fail
Control						
Test						

Mortality Data - Acute and Chronic TestsReproduction Data-Chronic Tests Only

Date _____

Lab ID _____

Group	# Adults	# Dead	Pass/Fail	Average	Variance	Pass/Fail
Control						
Test						

Mortality Data - Acute and Chronic TestsReproduction Data-Chronic Tests Only

Date _____

Lab ID _____

Group	# Adults	# Dead	Pass/Fail	Average	Variance	Pass/Fail
Control						
Test						

Signature of Principal Executive Officer or Authorized Agent _____

Name/Title of Principal Executive Officer *(typed or printed)* _____

DHEC 3420 (6/05)

STATISTICAL ANALYSIS RESULTS

Facility:	TWELVE MILE CREEK RESTORATION PROJE	NPDES#	SC
Sample ID:	COMPOSITE SAMPLE	ETT#	T35102
Laboratory:	ETT Environmental, Inc.	Certification #:	23104

Survival Data		Test Used:	Fisher's Test
Control	100%	Test Statistic:	P= 1.000
Effluent	100%	Critical Value:	P= 0.05

PASS: The effluent does not reduce survival of the test organisms.

		Control-Survival and Reproduction by Test Day								Total
source	rep	1	2	3	4	5	6	7	8	
N9 3-25	A			0						0
D4 3-28	A			0						0
AA6 3-26	A			0						0
A1 3-25	A			0						0
P4 3-25	A			0						0
M8 3-26	B			0						0
RANDOM IZED	B			0						0
	B			0						0
	B			0						0
	C			0						0
	C			0						0
	C			0						0
	C			0						0
	D			0						0
	D			0						0
	D			0						0
	D			0						0
	D			0						0
		35.6 % Effluent Survival and Reproduction by Test Day								Mean 0.0

Lab#	T36102
Client	SCHLUMBERGER
Sample ID	COMPOSITE
NPDES#	SC
County	O
Month	4
Start & fed Date	4-6-10
Start & fed Time	1630
Started & fed By	AE
Test Organism	Ceriodaphnia dubia
Neo. born date	4/6/10
Neo. born time	BATCH 2
Test Type	SCAPF
Dilution Water	MHSF
Units for Conc.	%
IWC	35.6
%3rd BROOD	
Test vessels	30 ml
Test volume	16 ml
Incubator #	1
Light	16lt/8dk
Initial Temp °C	24.3
Selenastrum	0.05 ml
YAT	0.05 ml
Test method	EPA 621-R-02-013:1002

		1	2	3	4	5	6	7	8	Total
N9 3-25	A			0						0
D4 3-25	A			0						0
AA6 3-26	A			0						0
A1 3-25	A			0						0
P4 3-25	A			0						0
M8 3-25	B			0						0
RANDOM IZED	B			0						0
	B			0						0
	B			0						0
	C			0						0
	C			0						0
	C			0						0
	C			0						0
	C			0						0
	D			0						0
	D			0						0
	D			0						0
	D			0						0
renew										Mean 0.0
fed										End Date 08-Apr-10
time-fed & renew										04:13 PM JC
New temp. °C										
Old temp. °C		25.5								

D=Dead N/A=Lost or not used

02:21 PM

Comments:
2 Mile Creek Restoration Project

DMR Attachment for Toxicity Test Results, Bureau of Water

TWELVE MILE CREEK RESTORATION PROJECT - GRAB

Permit number SC Discharge #:

Final Limits:

Parameter Code TGA3B MLOC=1 35.50 %Effluent

Monitoring Period	Year	Month	Day	Year	Month	Day
	From	10	4	1	To	10
						30

Date	Lab ID	Group	All tests			Chronic Tests Only		
			#Adults	#Dead	Pass/Fail	Average	Variance	Pass/Fail
05-Apr-10	23104	Control	20	0	PASS			
		Test	20	0				

Date	Lab ID	Group	All tests			Chronic Tests Only		
			#Adults	#Dead	Pass/Fail	Average	Variance	Pass/Fail
		Control						
		Test						

Date	Lab ID	Group	All tests			Chronic Tests Only		
			#Adults	#Dead	Pass/Fail	Average	Variance	Pass/Fail
		Control						
		Test						

Date	Lab ID	Group	All tests			Chronic Tests Only		
			#Adults	#Dead	Pass/Fail	Average	Variance	Pass/Fail
		Control						
		Test						

Date	Lab ID	Group	All tests			Chronic Tests Only		
			#Adults	#Dead	Pass/Fail	Average	Variance	Pass/Fail
		Control						
		Test						

Date	Lab ID	Group	All tests			Chronic Tests Only		
			#Adults	#Dead	Pass/Fail	Average	Variance	Pass/Fail
		Control						
		Test						

Signature of Principal Executive Officer or Authorized Agent _____

Name/Title of Principal Executive Officer (typed or printed) _____

DHEC 3420 (8/98)

STATISTICAL ANALYSIS RESULTS

Facility:	TWELVE MILE CREEK RESTORATION PROJE	NPDES#	SC
Sample ID:	GRAB SAMPLE	ETT#	T35103
Laboratory:	ETT Environmental, Inc.	Certification #:	23104

Survival Data

48 Hrs. Survival

Control	100%
Effluent	100%

Test Used: Fisher's Test

Test Statistic:	P=	1.000
Critical Value:	P=	0.05

PASS: The effluent does not reduce survival of the test organisms.

Control Survival and Reproduction by Test Day										
source	rep	1	2	3	4	5	6	7	8	Total
N9 3-25	A		0							0
D4 3-25	A		0							0
AA6 3-26	A		0							0
A1 3-25	A		0							0
P4 3-25	A		0							0
MB 3-25	B		0							0
RANDOM IZED	B		0							0
	B		0							0
	B		0							0
	B		0							0
	C		0							0
	C		0							0
	C		0							0
	C		0							0
	C		0							0
	D		0							0
	D		0							0
	D		0							0
	D		0							0

Lab#	T35103
Client	Schlumberger
Sample ID	GRAB
NPDES#	SC
County	0
Month	4
Start & fed Date	4-6-10
Start & fed Time	1630
Started & fed By	AE
Test Organism	Ceriodaphnia dubia
Neo. born date	4/6/10
Neo. born time	BATCH:2
Test Type	SCAPF
Dilution Water	MHSF
Units for Conc.	%
IWC	35.5
%3rd BROOD	
Test vessels	30 ml
Test volume	15 ml
Incubator #	1
Light	16h/8dk
Initial Temp °C	24.3
Selenastrum	0.05 ml
YAT	0.05 ml
Test method	EPA 821-R-02-013:1002

Old temp. °C

1

08-Apr-10

104:18 PM JC

04:18 PM VC

古文古文

02:22 · 8

Comments